Form INV-2 EMISSION POINT DESCRIPTION

Duplicate this form for EACH Emission POINT

1) Company/Facility Name	ACME HOSPTIAL	1a) Form INV-2 Page	3	of	4
2) Emission Point Number	EP6				
3) Emission Point Description	DIESEL GENERATOR STACK				
4) Is this stack/vent used as an Emergency Bypass Stack?	No ☒	Yes ☐			
If YES, for which stack(s)? List Emission Point Nos.:					

EMISSION POINT INFORMATION

5) Emission Point Type

Stack/Vent	☒	
Fugitive (specify)	☐	
Other (specify)	☐	

6) Stack Shape and Dimensions: (interior dimensions at exit point)

Circular Diameter:	☒	5	inches		
Rectangular Dimensions:	☐		inches	X	inches
Other Dimensions	☐		inches		

7) Stack Height Above Ground	67	feet

8) Does the Emission Point have a rain cap (or anything else) which obstructs the flow of gases leaving the Emission Point, or a horizontal discharge?

No	☒	YES (specify):	☐	

9) COMPOSTION OF EXHAUST STREAM

Exhaust Stream Characteristics	Emission Point Composition of Exhaust Stream	Units of Measure
a) Flow Rate	7,795	☒ ACFM ☐ SCFM
b) Temperature	400	Degree Fahrenheit

10) BYPASS STACKS

Bypass Stack – Emission Point No.		Bypass Stack Description	
Bypass Stack – Emission Point No.		Bypass Stack Description	

11) LIST OF EMISSION UNITS VENTING THROUGH THIS EMISSION POINT

Emission Unit No.	Emission Unit No	Emission Unit No.	Emission Unit No.
EU6			

Duplicate this form as needed | TYPE ALL INFORMATION | (DNR Form 542-4004. December 24, 2007)

Form INV-5 CALCULATIONS

Duplicate this form for each Form it will accompany in the Questionnaire

1) Company/Facility Name	ACME HOSPITAL			1a) Form INV-5 Page	3	of	7
2) Emission Point No.	EP6	3)	Emission Unit No.	EU6			
4) Calculations are provided in support of information reported on Form INV -	3 ☒	4 ☒	for the Emission Point and Emission Unit listed above.				
5) Emissions Calculations							

Process: Diesel Generator > 600 BHP SCC No. 20200401
Fuel: Diesel Fuel
Maximum rate: 226.9 gallons/hr, 0.140 MMBtu/gallon = 31.77 MMBtu/hr
Actual Year Throughput - Yearly Total: 1,900 gallons, 0.140 MMBtu/gallon = 266 MMBtu

Pollutant Emission Factor from WebFIRE (SCC No. 20200401)
$PM_{2.5}$ 7.55 lb/1,000 gallons or 0.05 lb/MMBtu

Pollutant Emission Factors from DNR Memo. This emission factor is an Iowa emission factor. It is based on stack tests
PM_{10} performed in the state. An emission factor rating has not been determined.
0.14 lb per MMBtu burned

Pollutant Emission Factors from AP-42 (SCC No. 20200401)
SO_2 1.01(S) lb per MMBtu burned S = percent sulfur in fuel
NOx 3.2 lb per MMBtu burned
VOC 0.09 lb per MMBtu burned
CO 0.85 lb per MMBtu burned

Calculations

POTENTIAL EMISSIONS:

Note: *The potential to emit for most generators can be calculated using an operating limit of 500 hours/year if the generator meets the following definition of potential to emit from 567 IAC 22.100:*

> *…For the purposes of calculating potential to emit for emergency generators, "maximum capacity" means one of the following:*
>
> - *500 hours of operation annually, if the generator has actually been operated less than 500 hours per year for the past five years;*
> - *8,760 hours of operation annually, if the generator has actually been operated more than 500 hours in one of the past five years; or*
> - *The number of hours specified in a state or federally enforceable limit.*

Potential $PM_{2.5}$ tons/yr
(31.77 MMBtu/hr) *x* (0.05 lb/MMBtu) = 1.59 lb/hr *x* (500 hours/year) *x* (1 ton/2,000 lb) = 0.40 tons/yr

Potential SO_2 tons/yr
(31.77 MMBtu/hr) *x* [1.01 (0.5 % sulfur) lb/MMBtu] *x* (500 hours/year) *x* (1 ton/2,000 lb) = 4.01 tons/yr

Potential PM_{10} tons/yr = 1.11
Potential NOx tons/yr = 25.42
Potential VOC tons/yr = 0.71
Potential CO tons/yr = 6.75

ACTUAL ANNUAL EMISSIONS:
Actual $PM_{2.5}$ tons
(266 MMBtu) *x* (0.05 lb/MMBtu) *x* (1 ton/2000 lb) = 0.01 tons

Actual PM_{10} tons = 0.02
Actual SO_2 tons = 0.07
Actual NOx tons = 0.43
Actual VOC tons = 0.01
Actual CO tons = 0.11

Form INV-3 EMISSION UNIT DESCRIPTION – POTENTIAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1) Company/Facility Name	ACME HOSPITAL	1a) Form INV-3 Page	3	of	4
2) Emission Point Number	EP6				

EMISSION UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

3) Emission Unit Number	EU6						
4) SCC Number	20200401						
5) Description of Process	DIESEL FUEL COMBUSTION > 600 BHP						
6) Date of Construction	6/1/85	7)	Date of Installation	6/1/85	8)	Date of Modification	
9) Raw Material – OR Fuels Used List worst case for EACH pollutant	DIESEL FUEL						
10) Federally Enforceable Limit	500 HOURS/YEAR						
11) Permit or Rule Establishing Limit	567 IAC 22.100						
12) Maximum Hourly Design Rate	31.77	MMBTU		Per Hour			

13) AIR POLLUTION CONTROL EQUIPMENT (CE)

Control Equipment Number	
Control Equipment Description	
Control Equipment Number	
Control Equipment Description	

POTENTIAL EMISSIONS

14 Air Pollutant	15 Emission Factor	16 Emission Factor Units	17 Source of Emission Factor	18 Ash or Sulfur %	19 Potential Hourly Uncontrolled Emissions (Lbs/Hr)	20 Combined Control Efficiency	21 Transfer Efficiency	22 Potential Hourly Controlled Emissions (Lbs/Hr)	23 Potential Annual Emissions (Tons/Yr)
PM-2.5	0.05	LB/MMBTU	WebFIRE		1.59				0.40
PM-10	0.14	LB/MMBTU	DNR Memo		4.45				1.11
SO_2	1.01	LB/MMBTU	AP-42	0.5	16.04				4.01
NOx	3.2	LB/MMBTU	AP-42		101.66				25.42
VOC	0.09	LB/MMBTU	AP-42		2.86				0.71
CO	0.85	LB/MMBTU	AP-42		27.00				6.75
Lead									
Ammonia									
POTENTIAL EMISSIONS – Individual HAPs and additional regulated air pollutants – list each individual pollutant name in Column 14									

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed

TYPE ALL INFORMATION

(DNR Form 542-4001. December 24, 2007)

Form INV-4 EMISSION UNIT DESCRIPTION – ACTUAL EMISSIONS

Duplicate this form for EACH Emission UNIT

1)	Company/Facility Name	ACME HOSPITAL		1a) Form INV-4 Page	3	of	5
2)	Emission Year	2008	3) Emission Point Number	EP6			

EMISSION UNIT – ACTUAL OPERATIONS AND EMISSIONS

4)	Emission Unit Number	EU6	5) SCC Number	20200401
6)	Description of Process	DIESEL COMBUSTION > 600 HP		

ACTUAL THROUGHPUT

7)	Raw Material	DIESEL FUEL			
8)	Actual Throughput – Yearly Total	266	9)	Units Raw Material	MMBTU

Actual Operating Rate/Schedule

	10) Percent of Total Operating Time	11) Hours/Day	12) Days/Week	13) Weeks/Quarter
JAN – MAR	23.5	1	1	2
APR – JUN	23.5	1	1	2
JUL – SEP	23.5	1	1	2
OCT - DEC	29.4	1.25	1	2

14) AIR POLLUTION CONTROL EQUIPMENT (CE)

Control Equipment Number	
Control Equipment Description	
Control Equipment Number	
Control Equipment Description	

ACTUAL EMISSIONS

15 Air Pollutant	16 Emission Factor	17 Emission Factor Units	18 Source of Emission Factor	19 Ash or Sulfur %	20 Combined Control Efficiency	21 Transfer Efficiency	22 Actual Emissions (Tons/Yr)
PM-2.5	0.05	LB/MMBTU	WebFIRE				0.01
PM-10	0.14	LB/MMBTU	DNR MEMO				0.02
SO_2	1.01	LB/MMBTU	AP-42	0.5			0.07
NOX	3.2	LB/MMBTU	AP-42				0.43
VOC	0.09	LB/MMBTU	AP-42				0.01
CO	0.85	LB/MMBTU	AP-42				0.11
Lead							
Ammonia							
ACTUAL EMISSIONS – Individual HAPs and additional regulated air pollutants – list each individual pollutant name in Column 15							

*Sources of Emission Factors: CEM .. Stack Test .. Mass Balance .. AP-42 .. WebFIRE.. TANKS.. EPA-L&E .. Worksheet .. Other – Specify

Duplicate this form as needed TYPE ALL INFORMATION (DNR Form 542-4002 December 24, 2007)